



02-09-04

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Robert Todd Belt
Title: Actuated Deformable Membrane Mirror
Serial No.: 10/734,699 Filing Date: Dec. 12, 2003
Examiner: Not assigned yet Group Art Unit: Not assigned yet
Docket No.: RTB001US

San Jose, California
February 6, 2004

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT UNDER CFR § 1.97(b)

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, Applicants call to the attention of the Examiner the documents listed on the attached substitute PTO Form-1449A.

Copies of the listed documents are enclosed.

Citation of the above documents shall not be construed as:

1. an admission that the documents are necessarily prior art with respect to the instant invention;
2. a representation that a search has been made; or
3. an admission that the information cited herein is, or is considered to be, material to patentability as defined in § 1.56(b).

No fee is believed required for submission of this information disclosure statement. However, the Commissioner is hereby authorized to charge any fees that may be required for consideration of this information disclosure statement to Deposit Account No. 50-1767.

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Respectfully submitted,

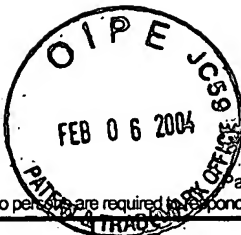
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PTO/SB/08A (10-96)

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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 3

Complete if Known

| | |
|------------------------|------------------|
| Application Number | 10/734,699 |
| Filing Date | Dec. 12, 2003 |
| First Named Inventor | Robert Todd Belt |
| Group Art Unit | |
| Examiner Name | |
| Attorney Docket Number | RTB001US |

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
|---------------------|-----------------------|--|----------------|
| | 8 | Bifano, Thomas G. et al., "Continuous-membrane Surface-micromachined Silicon Deformable Mirror" <i>Optical Engineering</i> 36:5 (May 1997) p. 1354-1360. | |
| | 9 | Ealey, Mark A. et al., "Continuous Facesheet Low Voltage Deformable Mirrors" <i>Optical Engineering</i> 29:10 (October 1990) p. 1191.-1198. | |
| | 10 | Hulburd, Bill et al., "Segmented Mirrors for Atmospheric Compensation" <i>Optical Engineering</i> 29:10 (October 1990) p. 1186-1190. | |
| | 11 | Lim, C.W. et al., "Three-dimensional Electromechanical Responses of a Parallel Piezoelectric Bimorph" <i>International Journal of Solids and Structures</i> , Vol. 38 (2001) p. 2833-2849. | |
| | 12 | Mali, Raji Krishnamoorthy et al., "Development of Microelectromechanical Deformable Mirrors For Phase Modulation of Light" <i>Optical Engineering</i> 36:2 (February 1997) p. 542-548. | |
| | 13 | Morris, Christopher J. et al., "Optimization of a Circular Piezoelectric Bimorph for a Micropump Driver" <i>Journal of Micromechanical Microengineering</i> , Vol. 10, (2000) p. 459-465. | |
| | 14 | Hoffmann et al., "Fabrication and Characterization of a PZT Thin Film Actuator for a Micro Electromechanical Switch Application" <i>Materials Research Society Symposium Proceedings</i> Vol. 688, C5.9 (2002) p. 145-152. | |
| | 15 | Roggemann, Michael C. et al., "Use of Micro-electro-mechanical Deformable Mirrors to Control Aberrations in Optical Systems: Theoretical and Experimental Results" <i>Optical Engineering</i> 36:5 (May 1997) p. 1326-1338. | |
| | 16 | Shwartz, Josef et al., "Tactical High Energy Laser" <i>SPIE Proceedings on Laser and Beam Control Technologies</i> Vol. 4632 (January 21, 2002). | |
| | 17 | Vdovin, Gleb et al., "Technology and Applications of Micromachined Silicon Adaptive Mirrors" <i>Optical Engineering</i> 36:5 (May 1997) p. 1382-1390. | |
| | 18 | Winsor, R. et al., "Finite Element Analysis of Low Cost Membrane Deformable Mirrors for High Order Adaptive Optics" <i>Proceedings of SPIE - High Resolution Wavefront Control: Methods, Devices and Applications</i> , Denver, Colorado (July 19-20, 1999) p. 2-11. | |

Examiner
Signature

Date
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

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| Attorney Docket Number | RTB001US |

Sheet 3 of 3

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| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
|------------------------|--------------------------|---|----------------|
| | 19 | Winsor, R. et al., "Low Cost Membrane Type Deformable Mirror With High Density Actuator Spacing" Proceedings of SPIE - Adaptive Optical Systems and Technology, Munich, Germany (March 29-31, 2000) p. 563-572. | |
| | 20 | Yang, Eui-Hyeok (EH) et al., "Design and Fabrication of Electrostatic Actuators With Corrugated Membranes for MEMS Deformable Mirror in Space" Proceedings of SPIE - Imaging Technology and Telescopes, San Diego, California, Vol. 4091 (July 30-31, 2000) p. 83-89. | |
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